1. A method of treating a human patient suffering from a neurodegenerative disease, said method comprising:

engrafting into said patient a population of recombinant cells comprising one or more cell fate-inducing genes that permit said cells to form neurons in said patient.

2. The method of claim 1, wherein said cell-fate inducing genes are one or more of Nurr-1, PTX3, Phox 2a, AP2, and Shh.

3. The method of claim 1, wherein said cells are made by the steps of:

a) obtaining one or more stem cells,

b) transfecting said one or more stem cells with said one or more cell fate inducing genes,

c) selecting one or more transfectants from step b), and

d) expanding said one or more selected transfectants from step c) to form said population of recombinant cells.

4. The method of claim 3, wherein step d) comprises inducing cell division using a growth factor.

5. The method of claim 4, wherein said growth factor is leukemia inhibitory factor.

6. The method of claim 1, wherein said cells are made by the steps of:

a) obtaining one or more stem cells,

b) expanding said one or more stem cells, and

c) transfecting multiple cells in the expanded cells from step b) with said one or more cell fate inducing genes to form said population of recombinant cells.

7. The method of claim 6, wherein step b) comprises inducing cell division using a growth factor.

8. The method of claim 7, wherein said growth factor is leukemia inhibitory factor.

9. The method of claim 1, wherein said one or more cell fate inducing genes permit said cells to form dopaminergic neurons.

10. The method of claim 1, wherein said recombinant cells are a homogenous cell population of a specific neuronal cell-type.

11. The method of claim 10, wherein said one or more cell fate inducing genes permit said cells to form dopaminergic neurons.

12. A method of treating a human patient suffering from a neurological disease, said method comprising:

engrafting into said patient isolated embryonic stem cells as a suspension of 50 to 5,000 isolated embryonic stem cells per microliter in a pharmaceutically acceptable carrier, such that the concentration of isolated embryonic cells is optimized to promote neuronal cell fate in the patient.

13. The method of claim 12, wherein the suspension comprises 100 to 2,000 isolated embryonic stem cells per microliter in a pharmaceutically acceptable carrier.

14. The method of claim 12, wherein fewer than 10,000 isolated embryonic cells are administered to the patient per administration.

15. The method of claim 14, wherein fewer than 2,000 isolated embryonic cells are administered to the patient per administration.

16. A method of treating a human patient suffering from a neurological disease, said method comprising:

engrafting into the patient a population of isolated embryonic stem cells as a suspension of 50 to 5,000 cells per microliter in a pharmaceutically acceptable carrier, such that the cells form, in the patient, a population of cells in which at least 90% the cells are dopaminergic or seratonergic neurons.

17. The method of claim 16, wherein the population of embryonic stem cells is recombinant, comprising one or more cell fate-inducing genes that permit said cells to form neurons in said patient.

18. The method of claim 17, wherein the cell fate-inducing genes are expressed from a heterologous promoter.